

STATE OF NEW MEXICO
WATER QUALITY CONTROL COMMISSION

WQCC 03-12(A) and WQCC 03-13(A)

IN THE MATTER OF:
APPEAL OF SUPPLEMENTAL DISCHARGE
PERMIT FOR CLOSURE (DP-1341) FOR
PHELPS DODGE TYRONE, INC.

PHELPS DODGE TYRONE, INC.,

Petitioner.

TRANSCRIPT OF PROCEEDINGS

BE IT REMEMBERED that on the 6th day of
September, 2007, the above-entitled matter came before
the New Mexico Water Quality Control Commission, taken
at the New Mexico State Capitol Building, Room 309, 490
Old Santa Fe Trail, Santa Fe, New Mexico, at the hour of
8:36 a.m.

WCO
Exhibit #16

VOLUME 11

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1 wells on the site.

2 The different colors represent different water
3 quality.

4 The green dots that you see, those indicate
5 wells where groundwater standards are not exceeded in
6 either the regional aquifer or the alluvial aquifer.
7 Okay. So that's important. That green color stands for
8 both aquifers.

9 The red dots indicate wells where we have
10 exceedances of groundwater standards in the regional
11 aquifer.

12 The orange dots represent exceedances in the
13 alluvial aquifer.

14 And the purple dots -- and there's just a
15 couple of them, and we've heard testimony about this
16 already, but these are wells where we have exceedances
17 just for manganese and fluoride.

18 And we see manganese and fluoride kind of pop
19 up in some of these wells, they exceed standards, but
20 there's really no source around to indicate that it's
21 due to mining activities. So I think it's kind of
22 important to distinguish those to some extent.

23 Now, groundwater at the mine site is,
24 obviously, heavily impacted by mining activities. A lot
25 of this is due to the discharge of leachate solutions by

1 Tyrone Mine to leach metals. That's what they're in the
2 business for. Some of it's also due to acid -- what's
3 referred to as acid rock drainage.

4 And I'd like to refresh the Commission's
5 memory a little bit about how that works. Acid rock
6 drainage occurs when you have sulfide minerals, minerals
7 like pyrite, which come in contact with water, oxygen
8 and these little bugs, these little bacteria. I forget
9 the name of them. I had it -- well.

10 In any case, those three things combined
11 create sulfuric acid, and the sulfuric acid, in turn,
12 leaches metals out of the rock itself, and it's this --
13 this liquid, this -- this fluid that eventually -- or is
14 responsible for contaminating groundwater if it makes
15 contact with groundwater.

16 Now, we've got two aquifers, they've both been
17 contaminated, and on both sides of the Continental
18 Divide.

19 I want to kind of start out and give you a
20 brief tour. I went into much more detail on this at the
21 last hearing. I'll spare the Commission this time
22 around. But I'm going to be a little bit more brief,
23 but feel free to ask questions.

24 The regional aquifer on the north side of the
25 mine -- and I'm talking just north of the Number 3 on

1 Exhibit 19. Maybe it's easier for me to just use the
2 screen up here so it's -- I think everybody can see it.

3 But in this particular area, you see a cluster
4 of red dots. That's the -- that's DP-286. The Number 3
5 Stockpile as it used to be referred to, it's now
6 referred to as the Number 3A Stockpile. That's the
7 leaching portion. The 3B portion is a waste rock pile
8 that sits right behind it on the edge of the pit. So
9 that's why it's a 3A and 3B now. Just a nomenclature
10 change by Tyrone.

11 This stockpile contamination was discovered
12 here back in 1990, rather extensive contamination that
13 showed up rather quickly, both in the alluvial aquifers,
14 and these are the alluvial channels coming out from
15 underneath the stockpile, and shortly outside the toe of
16 the stockpile they merge with the regional aquifer which
17 exists actually in the alluvium and the Gila
18 Conglomerate in this area.

19 So you've got the alluvial aquifer merging
20 with the regional aquifer, and we've got contamination
21 both within the alluvial aquifer and the regional
22 aquifer, because we have seepage going straight down
23 through the stockpile and into the regional and out, as
24 well.

25 The contamination was, obviously, significant

1 in this area, because -- I believe the well number now
2 is around 400 wells, both monitoring wells and pump-back
3 wells. We have pump-back trenches, we have surface
4 collection trenches. We've got a vast network -- I say
5 we. Actually Tyrone does.

6 Tyrone has a vast network of collection
7 systems out here and monitoring lines going farther out
8 into the valley to not only collect the renegade PLS
9 that has moved offsite, but to monitor and make sure
10 that those capture systems are actually working.

11 That's the north side of the mine.

12 If we move down to the west flank of the mine,
13 we've got Oak Grove -- I mean not Oak Grove Draw -- this
14 is Deadman Canyon. It's a pretty little canyon, wanders
15 down the -- it flows from the south to the north. Right
16 along the flank, up on the top edge of the canyon, you
17 can you see the stockpiles. We have the 2A Stockpile
18 and as well as portions of the Number 2 Stockpile that
19 border that canyon.

20 The USNR leach system, which is a historic
21 operation that Tyrone has acquired the property of now,
22 they were also in this canyon. And some of the
23 contamination that's in this canyon is due to their
24 operations as well as seepage that occurs from the 2A
25 Stockpile itself.

1 Another stockpile just to the south of the 2A,
2 which is called actually the 2B Waste Rock Pile, that's
3 actually where a lot of the seepage is coming from.

4 The major seepages in this area are the 5E
5 Seep and another seep called the DC2- -- DC2-1, I think.
6 We've got ARD coming off the waste rock pile that moves
7 into this canyon that's contaminated both the alluvial
8 aquifer, which has a relatively thin veneer of, again,
9 alluvium, this time sitting on hard rock. It's on --
10 it's on igneous rock in this area.

11 The fractured regional aquifer in this area
12 has also been contaminated by seepage from the
13 stockpiles on this side of the mine.

14 Now, moving around to the south side of the
15 mine, this is where Oak Grove Draw is. It starts over
16 here. Again, the Continental Divide is in this
17 direction. Again, it trends, you know, southwest to the
18 northeast. It starts up at the Continental Divide,
19 moves around along the south edge of the mine and then
20 offsite.

21 Down here on this side, we have portions of
22 the Number 2 Leach system, on the southwest corner, but
23 we've got -- primarily what borders this drainage is
24 DP-396. It's a waste rock pile and extends -- actually,
25 the boundaries of this permitted facility have extended

1 over time, but it extends on a major portion of Oak
2 Grove Draw, along the southern perimeter.

3 Now, this stockpile has never been leached.
4 So we're not talking about leachate in this stockpile.
5 We're talking about ARD in this stockpile. This is the
6 acid rock drainage. This is leachate that's occurred
7 from rainfall basically falling on the pile, becoming
8 contaminated and coming out the toe of the stockpile.
9 It's contaminated both the regional aquifer extensively
10 in this area, as well as the alluvial aquifer in this
11 area.

12 This is a stockpile that actually I started
13 reg -- I came on board with the Tyrone -- or regulating
14 facilities here at Tyrone back in -- about 1994, started
15 with the Groundwater Quality Bureau in 1993. And this
16 is one of the first facilities that Tyrone actually
17 approached me with as a regulator. They wanted to
18 actually leach this stockpile, and they approached us
19 back in 1995 or something to that extent.

20 It was at that time that we issued a letter, I
21 think in May of 1996, that stated that groundwater had
22 already been contaminated at this facility and that they
23 cannot -- they cannot leach it, but they still needed a
24 discharge permit, because now they had a discharge of
25 ARD coming out the bottom. Therefore, they needed a

1 permit for that discharge.

2 So they conceded, basically, applied for a
3 discharge permit for 396, and that's how that particular
4 stockpile has gotten its -- its discharge permit. But
5 it is a little bit different from most of the other
6 facilities within the central mining area that --
7 because those are all leaching facilities.

8 Now, over here on the east side of the mine,
9 this is -- this has kind of got a long history. We've
10 got three leach -- we've got three leaching facilities
11 in this immediate area. We got the 1A Stock -- 1A Leach
12 Stockpile, which is located right here on the east side.
13 Just north of it is the 1B Leach Stockpile. And we've
14 got the Number 1 Leach Stockpile that sits out here on
15 the other side of Highway 90, which runs north/south
16 right along the east flank of the mine.

17 This is, again, one of the first facilities I
18 regulated when I first came on board with the
19 Groundwater Quality Bureau. I renewed this permit in
20 1995. I required that they drill a new regional monitor
21 well right up as close to the toe as they could get on
22 the east flank of the mine.

23 When they started drilling that well in 1996,
24 they discovered PLS at 20 feet below ground surface.
25 Okay. And that's -- some of the Commissioners have

1 heard this before, but I'll just reiterate. But
2 basically, that's -- that kicked off a rather massive
3 corrective action plan to discover where the leachate
4 was coming from and if there were other sources in the
5 area.

6 Daniel B. Stephens was the lead project on
7 this. I think they opened up an office in Silver City
8 after this occurred. But primarily it led to a large --
9 a large number of wells being drilled.

10 As contamination was discovered coming out of
11 the 1C, the 1A, the 1B Stockpiles and the Number 1
12 Stockpile, all coming out through these alluvial
13 channels, in the alluvial aquifer, into the major
14 drainages, and the plume extended three-and-a-half miles
15 offsite, that's when they -- that's when they -- that's
16 where it was by the time they discovered it, about a
17 half mile from their own Mimbres production wells, which
18 are located down in Oak Grove Draw.

19 We've heard some talk about that from
20 Dr. Shomaker.

21 So we've got extensive contamination in all of
22 these. They put in a series of transects, pump-back
23 systems all the way down to capture this, this -- these
24 fluids basically, and contain them. That -- those
25 pump-back systems are still in effect.